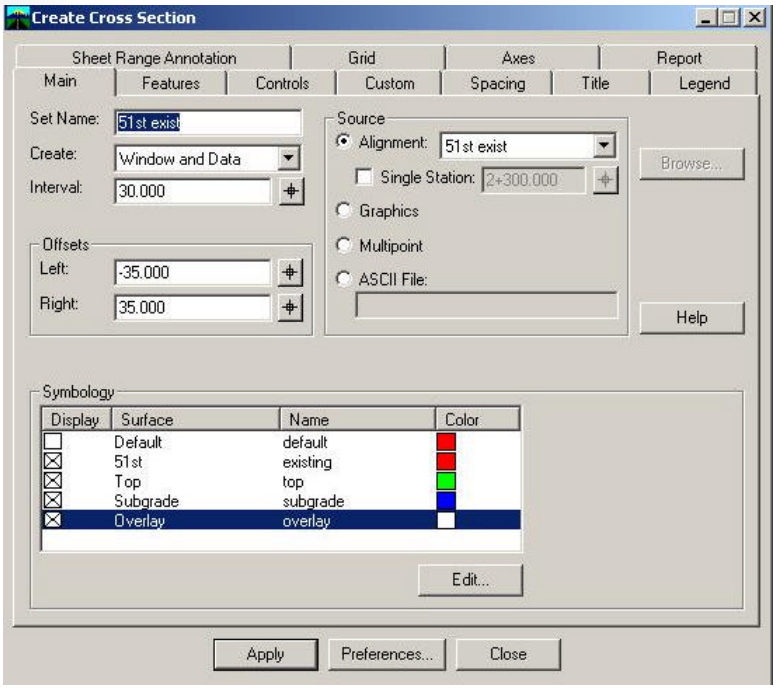
Cross Sections and Volumes

The creation of cross sections is the next step in the design process. Once the cross sections are complete, we shall then proceed to derive volumes for both cut and fill, and also for the overlay to take place.

1) Select **Evaluation>Cross Section>Create Cross Section** from the SelectCAD menu.

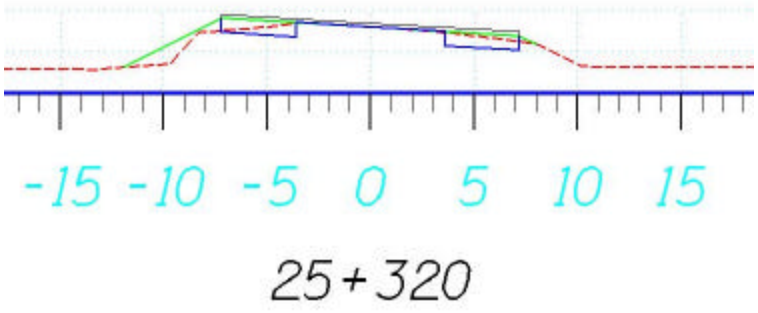


*? The **Create Cross Section** dialog box appears.*

- It is important to note at this point that the preferences already loaded for this command are the default, and are identical to MCDOT. It is not necessary to load preferences due to the fact that these cross sections are not for submittal. The user has the option at this point to load the **borderless** preferences if desired. The difference between the two preferences is the border that is used fits within a border referenced in at 1:500.

2) Toggle all of the newly created surfaces in the **Symbology** window.

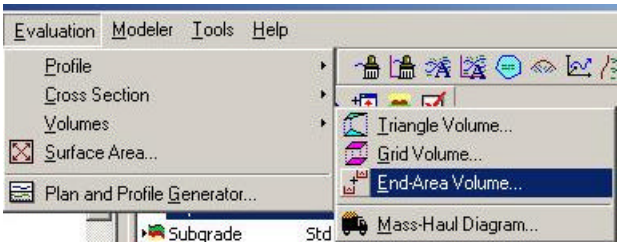
3) Click on **Apply**, and data click in the design file to place the cross sections.



- The image to the right represents the cross sections that were just created.

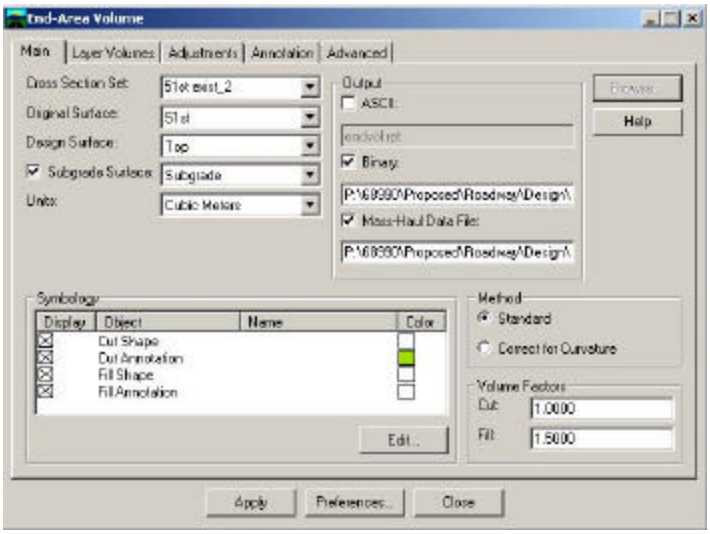
4) From the SelectCAD menu, select **Evaluation>Volumes>End-Area Volume…**

? *The **End-Area Volume** dialog box appears.*

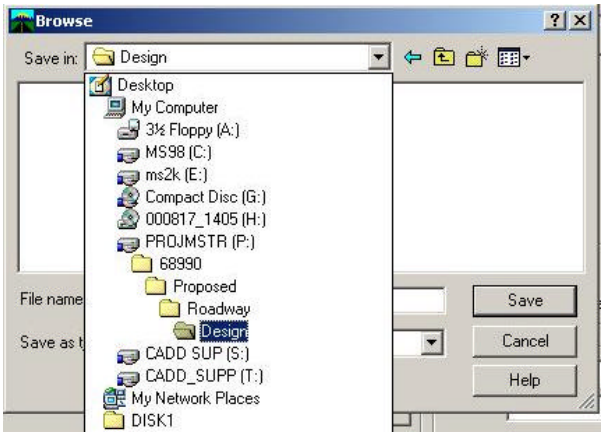


5) From the pull downs, set the **Original Surface** to **51st**, **Design Surface** to **Top**, and the **Subgrade Surface** to **Subgrade**.

6) Toggle on the **Binary> Output**, click in the data field, and click on the **Browse** button to the right of the **Output** area.



? *The **Browse** dialog box appears.*



7) Change the directory to **…\Roadway\Design** and enter **endvol** in the **File Name** data field.

8) Click on **Save** to name the file and close the dialog box.

9) Toggle on **Mass Haul Data File**, click in the data field and click on the **Browse** button once more.

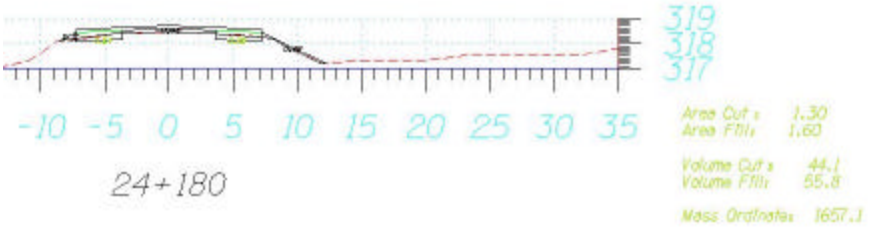
10) Repeat **step 7**, and name the file **51st**.

11) Click on **Save** to save the file name and close the dialog box.

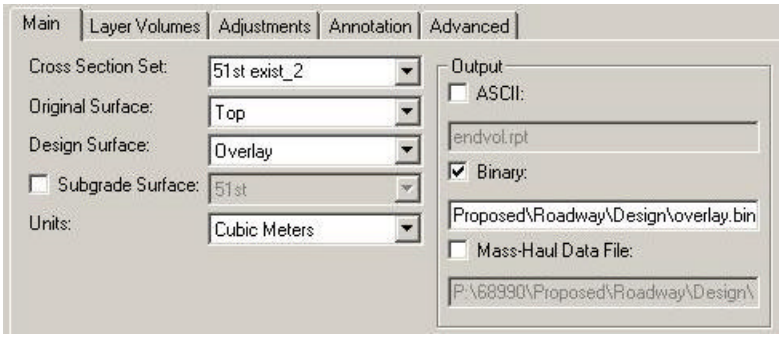
12) Click on **Apply** to run the end-area volumes and create the binary files to be used later.

- By zooming into one of the cross sections, the user will notice that the information for each cross section is displayed to the lower right corner of the cross section.

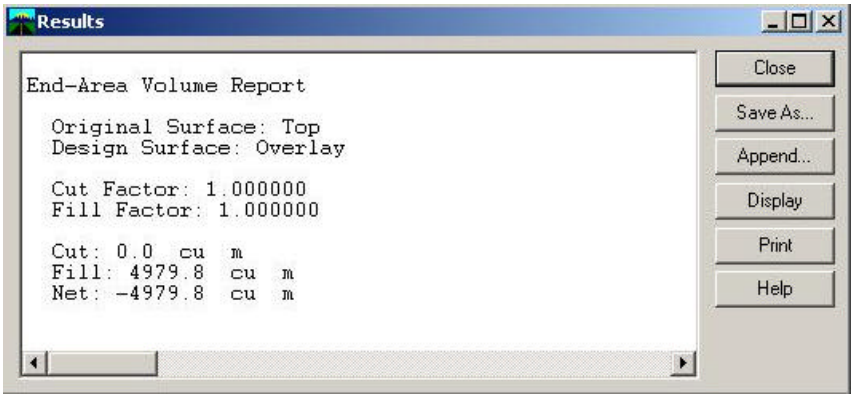
13) Toggle off the **Mass Haul Data File** and change the name of the volume data file to **overlay**.



14) Change the **Original Surface** to **Top**, the **Design** surface to **Overlay**, and toggle off the subgrade surface.



15) Click on **Apply** to have SelectCAD derive the volume for the overlay.

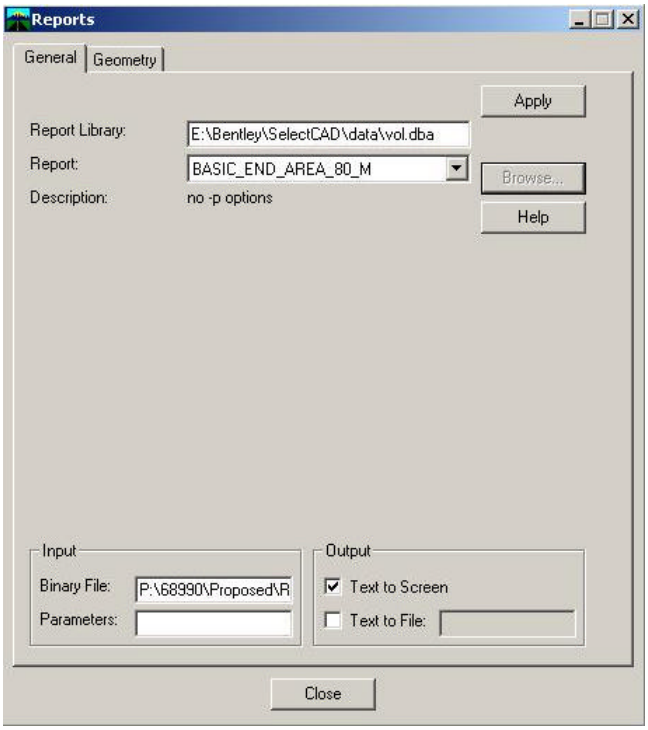


- The user must note that all text placed when the first volume was taken is now replaced with the values for the overlay volume. To avoid this from happening, the user can create a second set of cross sections to be used for the overlay volumes.

16) Click on **Close** in the **End-Area Volume** dialog box to exit the dialog box.

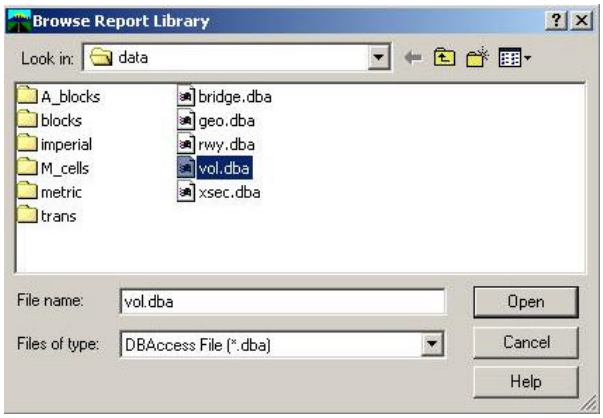
17) From the SelectCAD menu, select **Tools>Reports…**

? *The **Reports** dialog box appears.*



18) Under the **General** tab, data click in the **Report Library** data field and select **Browse** to the right of the data field.

19) Open **C:\Bentley\SelectCAD\data\vol.dba**.



20) From the **Report** pull-down , select **BASIC_END_AREA_80_M**.

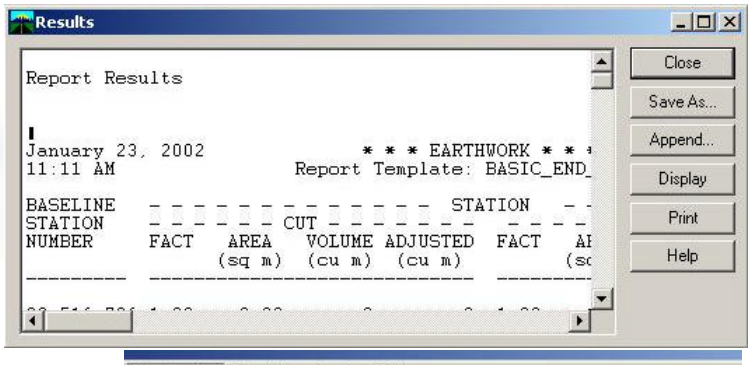
21) Data click in the **Input>Binary File** data field and click on **Browse** again.

22) Change the directory if necessary and select the volume binary file just created.

23) Verify the **Output** is set to **Text to Screen**, and click on **Apply**.

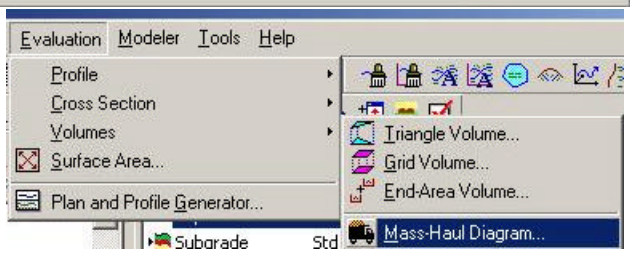
? *The **Results** dialog box appears.*

24) Select **Save As…** and save the file to **\Roadway\Design** as **Volume.txt**.



25) Click on **Close** to exit the dialog box.

26) Change the binary file to reflect the overlay file, and click on **Apply**.

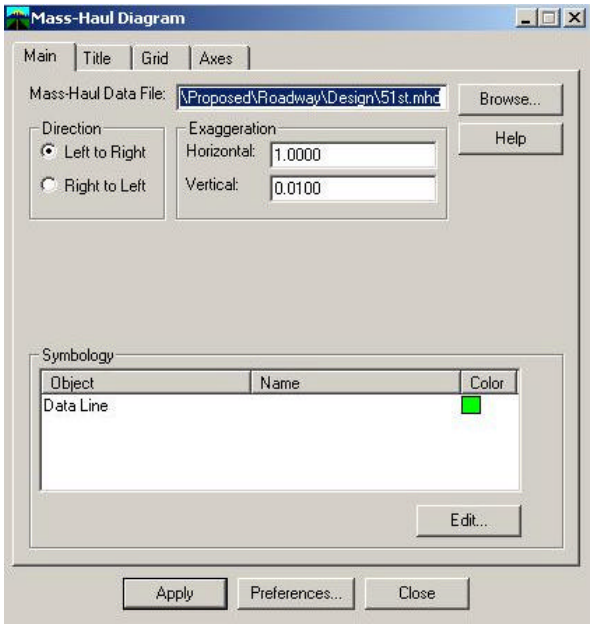


27) Save the file as **Overlay.txt**, and click on **Close** to exit the dialog box.

28) Select **Close** from the **Reports** dialog box.

29) From the SelectCAD menu, select **Evaluation>Volumes>Mass Haul Diagram..**

*? The **Mass Haul Diagram** dialog box appears.*



30) Under the **Main** tab, click in the **Mass Haul Data File** data field and select **Browse…**

31) Locate the data file saved when the volumes were calculated.

32) Click on **Apply** and data click in the design file to place the diagram.

33) Click on **Close** to exit the dialog box.